PART I - ADMINISTRATIVE

Section 1. General administrative information

Title of project

Walla Walla River Juvenile And Adult Passage Improvements

BPA project number: 9601100
Contract renewal date (mm/yyyy): ☐ **Multiple actions?**

Business name of agency, institution or organization requesting funding
Confederated Tribes of the Umatilla Indian Reservation

Business acronym (if appropriate) CTUIR

Proposal contact person or principal investigator:

Name	Gary James
Mailing Address	PO Box 638
City, ST Zip	Pendleton, Oregon 97801
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NPPC Program Measure Number(s) which this project addresses
7.10A

FWS/NMFS Biological Opinion Number(s) which this project addresses
NA

Other planning document references
Wy-Kan-Ush-Mi, Wa-Kish-Wit, Volume II, 1995. CRITFC-Walla Walla River, Instream Flow and Passage (II.B).

Walla Subbasin Plan. 1990. CTUIR - Part II, Habitat Walla Protection Needs, Habitat Protection Objectives and Strategies and Part IV, Anadromous Fish Production Plans, etc. (IA1,2)

Guidelines for Watershed Restoration In the Walla Walla River, Confederated Tribes of the Umatilla Indian Reservation, et. al (draft);

Walla Walla River Watershed Reconnaissance Report, Corps of Engineeers, 1997.

Draft Walla Walla Annual Operating Plan. 1997. CTUIR - Sections I., III., and IV.

Draft Walla Walla Subbasin Master Plan. 1993. CTUIR - Present Rehabilitation Efforts (III.C.) and Facilities Needed to Implement Program (VI.C.2.)

Short description
Provide safe passage for salmonid fish at several irrigation diversion dams and associated irrigation canals within the Walla Walla River Basin.

Target species
Summer steelhead, bull trout, redband trout, and spring chinook salmon once reintroduced. Various non-game fish species, will also benefit directly from these efforts.

Section 2. Sorting and evaluation

Subbasin
Walla Walla

Evaluation Process Sort

CBFWA caucus	Special evaluation process	ISRP project type
Mark one or more caucus	If your project fits either of these processes, mark one or both	Mark one or more categories
☒ Anadromous fish ☐ Resident fish ☐ Wildlife	☒ Multi-year (milestone-based evaluation) ☒ Watershed project evaluation	☐ Watershed councils/model watersheds ☐ Information dissemination ☒ Operation & maintenance ☒ New construction ☐ Research & monitoring ☐ Implementation & management ☐ Wildlife habitat acquisitions

Section 3. Relationships to other Bonneville projects

Umbrella / sub-proposal relationships. List umbrella project first.

Project #	Project title/description
20553	Walla Walla River Tributary Fish Passage
9601100	WW River juv. and adult fish passage improv. (subject-sub-proposal)
8802200	Walla Walla Fish Passage Operations (submitted seperately)

Other dependent or critically-related projects

Project #	Project title/description	Nature of relationship
9604601	Walla Walla Basin Fish Habitat	Enhanced natural production areas as

	Enhancement	a result of habitat restoration will increase importance and ulitization of adult passage facilities within this proposal.
8805302	NE Oregon Walla Walla Hatchery Facility	Proposed project will provide adult passage benefits for spring chinook and summer steelhead produced from hatchery
9000501	Walla Walla Basin Natural Production M & E	Enhanced natural production areas as a result of habitat restoration will increase importance and ulitization of adult passage facilities within this proposal.

Section 4. Objectives, tasks and schedules

Past accomplishments

Year	Accomplishment	Met biological objectives?
1997	Removed Marie Dorian Dam on Walla Walla River	Yes, eliminated upstream passage barrier to migratory salmonids
1998	Removed Maiden Dam-Touchet River	Yes, eliminated upstream passage barrier to migratory salmonids
1998	Designed and constructed Burlingame fish ladder and adult trap-Walla Walla River	Yes, fish ladder and trap designed as per passage criteria
1999	Constructed Nursery Bridge Dam fish ladder and adult trap-Walla Walla River	Anticipate yes, new fish ladder and adult trap designed as per passage criteria
1999	Constructed juvenile screens, juvenile bypass and trap at Little Walla Walla Diversion-Walla Walla River	Anticipate yes, facility to be designed as per passage criteria
1999	Constructed/renovated juvenile screens at Burlingame Dam-Walla Walla River	Anticipate yes, facility to be designed as per passage criteria
1999	Designed Garden City/Lowden II consolidation-Walla Walla River	Anticipate yes, facility to be designed as per passage criteria
1999	Designed Hofer's Dam fish ladder-Touchet River	Anticipate yes, facility to be designed as per passage criteria

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Provide safe passage for migrating salmonid fish at diversion dams within the Walla Walla River Basin	a	Construct fish ladder at Hofer's Dam on the Touchet River
		b	Develop design and construct fish ladder at Gose Street on Mill Creek
		c	Consolidate Garden City and Lowden II irrigation ditches on Walla Walla River
		d	Design and construct East-Side/Little Walla Walla ditch consolidation project
		e	Operate and maintain passage facilities in the Walla Walla Basin to ensure adequate passage

Objective schedules and costs

Obj #	Start date mm/yyyy	End date mm/yyyy	Measureable biological objective(s)	Milestone	FY2000 Cost %
1	10/1999	9/2000	Increased survival of migrating salmonid fish	Safe passage facility constructed	1.0

				Total	100.00%

Schedule constraints
Potential constraints may include engineering, design, construction, and permitting delays for tasks listed in objective 1.

Completion date
Design and contstruction projects are expected to be completed during the FY 2000 funding period. Operation and maintenance, will require funding on an annual basis into the forseeable future.

Section 5. Budget

FY99 project budget (BPA obligated):

FY2000 budget by line item

Item	Note	% of total	FY2000
Personnel		%0	
Fringe benefits		%0	
Supplies, materials, non-expendable property		%0	
Operations & maintenance		%0	
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		%0	
NEPA costs		%0	
Construction-related support		%0	
PIT tags	# of tags:	%0	
Travel		%0	
Indirect costs		%0	
Subcontractor	Funding request will all be subcontracted for constuction and operation and maintenance	%100	2,840,000
Other		%0	
TOTAL BPA FY2000 BUDGET REQUEST			$2,840,000

Cost sharing

Organization	Item or service provided	% total project cost (incl. BPA)	Amount ($)
Bureau of Reclamation	Cost-share in the development and construction of East-Side Ditch Consolidation	%0	
Walla Walla Irrigation District		%0	
		%0	
		%0	
Total project cost (including BPA portion)			$2,840,000

Outyear costs

	FY2001	FY02	FY03	FY04
Total budget	$250,000	$250,000	$250,000	$250,000

Section 6. References

Watershed?	Reference
☐	Lane., and Lane. 1979. Traditional fisheries of the Walla Walla, Cayuse, and Umatilla.
☐	Swindell, E.G. 1942. Report on resource, nature and extent of the fishing, hunting, and miscellaneous rights of certain Indian Tribes in Washington and Oregon etc. Office of Indian Affairs, Division of Forestry and Grazing, Los Angeles, CA.
☐	Van Cleve, R., and Ting, R. 1960. The condition of salmon stocks in the John Day, Umatilla, Walla Walla, etc. Publisher Unknown.
☐	
☐	

PART II - NARRATIVE

Section 7. Abstract

Fish populations in the Walla Walla River have been heavily impacted by inadequate passage facilities at diversion dams and resultant dewatering associated with agricultural demands. Inadequate flow and passage conditions are a primary factor in the decline of native summer steelhead runs and extirpation of spring chinook salmon in the basin. Currently, efforts are underway to restore populations of summer steelhead and reintroduce spring chinook salmon. Ongoing projects include a new fish hatchery, habitat restoration/protection, new juvenile screens, and instream flow enhancement.

This project will integrate with the ongoing efforts listed above by addressing passage issues imperative to the continued survival and reintroduction of salmonid fish within the basin. The objective of this project is to enhance passage conditions in the Walla Walla River for juvenile and adult salmonid fish by removing passage barriers, and improving fish ladders and canal screens. It is expected that by providing safe passage to juvenile and adult salmonid fish, naturally spawning populations of salmonids will be elevated, and juvenile outmigration increased.

The projects proposed within this document are the remaining critical sites requiring passage improvements. These projects are considered paramount and fundamental in the plan to protect remaining populations of summer steelhead and reintroduce spring chinook salmon. In the absence of adequate passage, all portions of the plan will fail. Time is of essence, particularly for summer steelhead. Annually, ascending adult returning summer steelhead are observed making repeated attempts to negotiate various structures throughout the basin. Many are forced to spawn in unacceptable habitat below the dams, others are injured. Consequently, annual adult return trends for the Walla Walla are diminishing. Adult return numbers at Nursery Bridge Dam were as high as 739 fish in 1992. In 1996, a total of 249 fish returned; 314 returned in 1998.

All structures constructed under this proposal meet design criteria and are based on sound scientific principles. Adult survival benefits to production areas realized from the project's completion will contribute to the NPPC rebuilding goal. The project will strive to follow guidelines outlined in the FWP and only implement projects expected to provide the maximum benefit to salmonid fishes.

(Replace this text with your response in paragraph form)

Section 8. Project description

a. Technical and/or scientific background

Historically, runs of spring and fall chinook, chum, coho, and sockeye salmon are believed to have inhabited the Walla Walla River Basin. Swindell (1942) and Lane and Lane (1979) described fishing sites in the Walla Walla River where chum, coho, and steelhead were harvested. Today, all species of salmon are extinct. Only summer steelhead, bull trout, mountain whitefish, western brook lamprey, and possibly pacific lamprey exist.

The Walla Walla River is currently, and has been historically, heavily diverted for agricultural use. Van Cleve and Ting (1960) reported that since the early 1900's, numerous diversion dams, defunct ladder systems, dewatering, and non-existant or dysfunctional screen systems had effectively eliminated the potential for salmonid fish in the basin. Many of the problems reported to have occurred in the early 1900's by Van Cleve and Ting (1960) are still occurring today. Certainly, inadequate flows and migration conditions during critical portions of both adult and juvenile migration periods

were the primary contributor to the extirpation of salmon and depression of the native summer steelhead populations in the basin.

Beginning in the early 1990's, CTUIR began to develop a comprehensive plan, similar to that being successfully implemented in the Umatilla Basin, to rehabilitate summer steelhead populations and restore spring chinook to the Walla Walla Basin. A key component of the plan was to address the inadequate migration conditions. In the mid 1990's, funding became available to begin improving adult passage conditions. This proposal addresses the most critical sites.

In the past two years, several critical projects have been funded by this project. In 1997, Marie Dorian Dam was removed. In 1998, Maiden Dam was removed. In 1997 and 1998, the CTUIR, COE, NMFS, and ODFW, developed draft designs for the construction of a new fish ladder and adult trap at Nursery Bridge Dam; construction is expected to occur in 1999 or 2000. In 1997 and 1998, design and construction/renovation of a fish ladder and adult trap was completed at Burlingame Dam. In 1999, this project will fund the construction of new screens, juvenile bypass and trap at Little Walla Walla Diversion, new screens at Burlingame Diversion, develop designs for a ditch consolidation for Garden City and Lowden II, and design a new fish ladder at Hofer's Dam on the Touchet River.

The current passage configurations at Hofer, and Gose Street Dams are inadequate for facilitation of salmonid passage, particularly ascending adults. Both dams were designed with jump pools rather than fish ladders. Attraction flows are dispersed across the entire channel therefore ascending adults are often unable to locate the jump pools and during high flow events, predominant during much of the migratory period for summer steelhead and spring chinook salmon, velocity barriers prevent effective migration. At the least, passage conditions at each of the above structures is responsible for migrational delays and possibly injure adults. In more extreme situations passage may be totally precluded resulting in adults either spawning unsuccessfully or spawning in unsuitable habitat below the dam.

Garden City and Lowden II are diversion canals on the Walla Walla River. Each successfully diverts water from the Walla Walla River through the use of temporary push-up gravel dams. The dams are typically constructed with heavy machinery in the spring of each year. Conveniently, the ditches are situated to allow consolidation. This project, to be designed in 1999, will likely eliminate the need for any push-up dams and resultant habitat disturbance, by utilizing drainpipe and pumps. By consolidating into one ditch, one juvenile screen, bypass, and associated operation and maintenance will also be eliminated. Some water conservation as a result of reduced seepage may be expected.

The Little Walla Walla East-Side Ditch Consolidation is similar to the project described above. Currently the East-Side Ditch is diverted through the use of a push-up gravel dam. The dam is effectively created each spring and maintained with heavy machinery throughout the summer months. The ditch is screened although the system is questionable for migrating juvenile salmonids. This project would eliminate the ditch by

providing water to the East-Side Ditch through a pipe from the Little Walla Walla Diversion. The Little Walla Walla Diversion is receiving new screens, bypass, and juvenile trap in 1999 and thus provides an effective, yet fish friendly, point of diversion. Direct benefits to salmonid fish in the basin include the elimination of one annual push-up dam, one juvenile screen and bypass, and costs associated with operation and maintenance. A water conservation will also provide enhanced instream flows of up to 5 cfs.

The operation and maintenance task included within this proposal will be subcontracted out to one of the local irrigation districts. O&M will be implemented at project sites, current and past, funded under 960110 and 960120, Juvenile Passage Improvements and Adult Passage Improvements respectively. O & M will follow passage criteria established by the NMFS, FPO guidelines, and the Annual Operating Plan. Management entities, passage engineers, and irrigation districts will meet periodically to discuss any pertinent subjects related to maximizing effectiveness of the facilities for the survival of adult and juvenile fishes.

b. Rationale and significance to Regional Programs

The primary goal of the project is to enhance passage conditions in the Walla Walla River for adult and juvenile salmonid fish by removing passage barriers and improving fish ladders and irrigation canal screens. This goal is directly related to the Council's mandate to protect, mitigate, and enhance fish and wildlife affected by development and operation of the hydropower system. This project will further the goals set forth in the 1994 FWP by: (1) providing access to high quality habitat through the removal and renovation of passage barriers; (2) prioritizing restoration projects through the use of watershed assessment; (3) giving priority to restoration actions that maximize the desired result per dollar spent; (4) implementing proven restoration methods, removal of passage impediments; (5) seek cost-share (75% of Nursery Bridge ladder and trap paid by COE in 1999) and encouraging the investment of volunteers.

The project objective of increasing survival of juvenile and adult migrants by addressing passage concerns is specifically outlined in Section 7.10 of the 1994 Fish and Wildlife Program. The project provides in-place, in-kind mitigation for historical losses associated with water diversions in the Walla Walla River Basin. This, in turn, should result in increased natural production, which should address the NPPC rebuilding goal by increasing the number of fish produced by the basin.

Consistent with the 1994 FWP, this project will work as a logical component in the Walla Walla Fish Restoration Program. Ongoing efforts include a new hatchery, dam removal, new ladders and screens, habitat enhancement and instream flow enhancement. This proposal is part of a comprehensive effort in the basin, which involves many different projects including the umbrella sub-proposal listed in Section 3 and the Council funded NEOH Supplementation Project outlined in Section 7.4L of the Fish and Wildlife Program. This comprehensive effort also

includes many public and private habitat enhancement efforts as well. The success of these projects and the overall restoration effort is directly dependant on the ability of projects within this proposal to ensure that passage conditions are no longer a limiting factor affecting salmonid survival in the basin.

c. Relationships to other projects

Within the Walla Walla River Basin, four critical components are being addressed to meet the successful enhancement of salmonid fish populations. These include artificial production, removal of passage impediments, instream flow enhancement opportunities, and habitat restoration/protection. Specific examples funded entirely or in part by the FWP include the removal of Marie Dorian Dam and Maiden Dam (1997 and 1998), the construction of Burlingame fish ladder and screens, (1998-99), the construction of Nursery Bridge fish ladder and adult trap (1999), construction of Little Walla Walla screens, bypass and juvenile trap (1999), development of a watershed assessment (1998-2000), and the construction of a new fish hatchery (1998-2000).

Regarding passage impediments, two critically linked projects together form the basis for the Walla Walla Tributary Fish Passage umbrella proposal identified in Section 3. These two projects are dependent on each other in order to meet the passage objectives in the basin. The Fish Passage Operations Project and Juvenile Screens Projects provide funding for construction, passage improvements, and maintenance/operation of projects proposed within this document. Multi-year funding is being requested for these related projects listed under the Walla Walla River Tributary Fish Passage Umbrella.

This project is relevant and complimentary to ongoing projects specified above in that it addresses the passage impediment component of the plan. In the absence of adequate passage conditions, all other efforts toward restoration will fail, and ultimately salmonid fish in the basin will face further extinction. On a broader scale, its expected that by providing safe passage for migrating salmonids in the Walla Walla Walla River Basin, that ultimately more outmigrants will successfully leave the Columbia Basin. It is also felt that projects throughout the Columbia Basin, including this project, are interdependent because of the migratory behavior of anadromous fishes. If we are to be successful at restoring salmonid populations, we must recognize that all aspects of the salmon life cycle are dependent on one another. Thus all habitats, headwater to ocean, must meet requirements necessary for the survival of the species. This approach is reflected within the FWP in section 7.6C, which states that "such restoration activities, to be successful, must be coordinated across many jurisdictional and ownership boundaries. And, "failure to integrate (projects) will put each action at risk of being undermined by uncoordinated actions downstream, upstream or upslope".

This project requires interaction between State, Federal, Tribal, and local interests. All projects require some or all of the following: permitting/compliance through the Division of State Lands, Oregon Department of Fish and Wildlife, Corps of Engineers, Washington Department of Fish and Wildlife, Bonneville Power Administration, National Marine Fisheries Service, and the United States Fish and Wildlife Service.

Locally, this project works with the Walla Walla Watershed Council. The council assists in landowner/interagency coordination, and local information input.

d. Project history (for ongoing projects)

For the sake of clarification and reduction in time needed to create and review BPA proposals, this project was combined with project number 9601200, Adult Passage Improvements in the Walla Walla River for FY 2000. Funding for each of the combined projects, adult passage improvements #9601200 and juvenile passage improvements #9601100 began in 1996. Past annual project costs requested from BPA for the combined projects have ranged from $190,000 in 1996 to $1, 800,000 in 1998 with an average annual cost of $882,333.

Since 1996, this project has successfully removed Marie Dorian Dam and Maiden Dam, designed and constructed Burlingame fish ladder and adult trap, and has drafted designs for a new ladder and adult trap at Nursery Bridge Dam. In 1999, this project will construct new juvenile screens at Burlingame Dam, construct new screens, bypass, and juvenile trap at Little Walla Walla Diversion, construct Nursery Bridge Dam fish ladder and adult trap, develop designs for fish ladders at Hofer's Dam (Touchet River) and Gose Street Dam (Mill Creek), and develop designs for Garden City/Lowden II ditch consolidation on the Walla Walla River.

This project produces no annual or monthly reports. Adaptive management implications include regularly held meetings to discuss options for facility design and operation/maintenance. Final design documents, construction plans, and operating criteria will be published for distribution by engineering consultant.

e. Proposal objectives

Consistent with Section 7.10 of the FWP, this project will strive to provide safe passage for migrating salmonid fish at diversion dams within the Walla Walla River Basin. **The objective of this project is to enhance passage conditions in the Walla Walla River for juvenile and adult salmonid fish by removing passage barriers and improving fish ladders and canal screens.** Expected benefits to the FWP include increased natural production, which will address the NPPC rebuilding goal by increasing the number of fish produced by the basin.

Since the project involves construction and operation, rather than research, specific measurable objectives or outcomes may be limited. There are anticipated to be associated monitoring and evaluation efforts, which will address isolated aspects of project operations that result from this proposal. The success of the project will be primarily evaluated on meeting passage criteria established by NMFS and management agencies for the basin.

Because this proposal is design and construction oriented, the project will produce no annual or quarterly, or technical reports. The project will produce, however, final

engineering, design, and operating criteria for all construction projects requested within this proposal.

f. Methods

All facility designs and ditch consolidations will be subcontracted out for engineering design. Only subcontractors with previous passage work will be selected. Input and review will be included from the CTUIR, COE, WDFW, ODFW, passage engineers from NMFS, Fish Screening Oversite Committee members, and other agency staff with passage backgrounds. All projects will be based on sound scientific principles defined within NMFS design criteria for passage improvements.

Tasks “a” through “e” of the proposal may require any of the following sub-tasks:

Task a: Construct fish ladder at Hofer's Dam on the Touchet River

1. Construction work will be subcontracted out to engineering consultant.
2. Engineering consultant will hire contractor capable of performing necessary work.
3. Engineering consultant/contractor will obtain necessary building permits, instream work permits, water use permits, landowner clearance, etc.
4. Contractor will construct new fish ladder

Task b: Develop designs and construct fish ladder at Gose Street on Mill Creek

1. Design work will be subcontracted out to engineering consultant.
2. Engineering consultant will develop several drafts then final design of fish ladder at Gose Street with input from management entities, passage engineers from NMFS, and USFWS.
3. Engineering consultant will hire contractor capable of performing necessary work.
4. Engineering consultant/contractor will obtain necessary building permits, instream work permits, water use permits, landowner clearance, etc.
5. Contractor will construct new fish ladder

Task c: Consolidate Garden City and Lowden II irrigation ditches on Walla Walla River

1. Design work will be subcontracted out to engineering consultant.
2. Engineering consultant will develop several drafts then final design of ditch consolidation, screen design, and pump features with input from management entities, passage engineers from NMFS, and USFWS.
3. Engineering consultant will hire contractor capable of performing necessary work.

4. Engineering consultant/contractor will obtain necessary building permits, instream work permits, water use permits, landowner clearance, etc.
5. Contractor will consolidate ditches, and construct new screens, and pumping apparatus.

Task d: Design and construct East-Side/Little Walla Walla ditch consolidation project

1. Design work will be subcontracted out to engineering consultant.
2. Engineering consultant will develop several drafts then final design of ditch consolidation, pipe configuration, etc. with input from management entities, passage engineers from NMFS, and USFWS, and Walla Walla Irrigation District.
3. Engineering consultant will hire contractor capable of performing necessary work.
4. Engineering consultant/contractor will obtain necessary building permits, instream work permits, water use permits, landowner clearance, etc.
5. Contractor will complete work necessary to consolidate East Side and Little Walla Walla Ditches.

Task e: Operate and maintain passage facilities in the Walla Walla Basin to ensure adequate passage

1. Operation and maintenance activities will be subcontracted out to one of the local Irrigation Districts.
2. Operation and maintenance activities will be implemented at all passage structures funded by this project from inception to present.
3. Operation and maintenance at individual sites will be based on NMFS guidelines, FPO guidelines, Passage Annual Operating Plan, and input from management and technical staff.

g. Facilities and equipment

The juvenile screens, adult trapping, and passage facilities in the Walla Walla Basin are inadequate to perform tasks necessary to ensure survival of salmonid fish within the basin. The rehabilitation and facility construction of several critically important sites are requested for funding consideration within this document. Once these projects are completed, facilities will be adequate to perform the anticipated tasks.

All subcontractors hired for design, construction, and operation and maintenance will be expected to provide equipment capable of performing necessary tasks.

h. Budget

All budget requests within Section 5 of this proposal will be subcontracted for facility design, construction and operation and maintenance of juvenile and adult passage facilities in the Walla Walla River Basin.

Construction costs for each project were developed by reviewing contemporary costs within neighboring basins, and consultation with BPA and independent contractors. Design costs were estimated to be 10% of construction fees.

Section 9. Key personnel

Personnel for this project will be comprised entirely of subcontractors. Key personnel involved in the development of this proposal request from the CTUIR are below.

Name: Gary James
Title: Fisheries Program Manager
Months funded this project: 1(.08 FTE)
Education: BS Fisheries 1979 Oregon State University
Experience: 22 years fisheries experience; last 17 years CTUIR Program Manager; expertise in multi-project development, coordination, and oversight.

Name: Jed Volkman
Title: Fisheries Habitat Biologist
Months funded this project: 5 (.41 FTE)
Education: BS Fisheries 1990 University of Idaho; Technical Degree Plant Science 1984, Walla Walla Community College.

Experience:

University of Idaho-1987-89; duties included the feeding, maintenance, and care for experimentally held rainbow trout. Responsibility also included various data collection processes.

University of Idaho-1989-1991; primary responsibilities included the installation, operation, and maintenance of radio telemetry equipment for an adult passage evaluation on the Snake River. Duties also included the operation of adult salmonid trap at Ice Harbor Dam on the Snake River, handling and use of anesthesia (MS222), and various tagging operations including passive integrated transmitters (PIT), radio transmitters, coded wire tags, spaghetti tags.

Confederated Tribes of the Umatilla Indian Reservation-1991-present;

Adult Passage Evaluation-four years as project leader/passage biologist-primary responsibility to evaluate movements of adult salmonids past five diversion dams on the Umatilla River through the use of radio telemetry. Project responsibilities included project design, equipment operation/installation, implementation, data collection and analysis, report writing, budget, and supervision of employees.

Hanford Reach Project-six years (1 month per year, concurrently with the adult passage project described above) as project leader-duties include: project planning, equipment acquisition/operation and implementation of project on the Hanford Reach of the Columbia River. Goal of the project is to capture of 200,000 juvenile fall chinook for coded wire tagging. Capture of juveniles is accomplished through the

operation of jet boat, beach seines and stick seines. Responsibilities also include data collection and analysis, report writing, SOW/budget, and supervision of four employees.

Habitat Restoration in Walla Walla River Basin-three years as project leader/habitat biologist. Project duties include but not limited to: BPA proposals, annual and quarterly reports of progress, development of statement of work/budget, landowner easements, equipment contracts, instream work permits, interagency communication, landowner communication, project design and implementation, and supervision of three employees.

Recent publications include:

Author of 1992-1996 Umatilla River Adult Passage Evaluation Annual reports of progress.

Author of 1997 Walla Walla River Basin Fish Habitat Enhancement.

Recent job completions:

BPA Proposals, Annual Report of Progress, development of long-term easement for landowner on Couse Creek, development of contract for planting of 10,000 native trees/shrubs.

Section 10. Information/technology transfer

Meetings are held regularly to discuss the designs and operation/maintenance of facilities and ditch consolidation. Engineering Subcontractor will publish final design documents and construction plans for distribution.

Congratulations!